MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2210)

EES3016 – ENGINEER AND SOCIETY

(All Section / Groups)

09 FEBRUARY 2023
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 7 pages (including the cover page) with 7 Questions only.

2. Attempt all of the **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

Question 1

(a) Chemical contamination and marine trash are marine pollution are severe issues that are continuously expanding and becoming more severe from day to day.

Describe these pollutions and their dangers to the environment and mankind.

[3 + 3 marks]

(b) A low carbon city concept is seen as a way forward to reducing the carbon footprint and to combat global temperature rise.

Discuss in detail TWO ways how a low carbon city concept can be implemented.

[6 marks]

(c) Waste management maintenance is a concept that involves the activities and actions required to manage waste from its inception to its final disposal.

Citing a suitable example, describe how the following waste management principles are used to manage waste:

(i) zero waste hierarchy

[4 marks]

(ii) polluter-pays-principle

[4 marks]

Continued.....

Question 2

(a) Below are some of the roles of an employer in following the Occupational Safety and Health Act (OHSA). Discuss in your own words on the benefit of implementing each role.

(i) Emergency evacuation practices.

[2 marks]

(ii) Awareness campaign and survey.

[2 marks]

(iii) Enforcement of the use of personal protective equipment (PPE).

[2 marks]

(b) Discuss and analyse the impact of NOT implementing necessary safety standards in all engineering construction, projects and consultation, under the following perspectives:

(i) Humanitarian and ethical.

[2 marks]

(ii) Legal and regulatory.

[2 marks]

(iii) Institutional/image.

[2 marks]

(iv) Economic.

[2 marks]

(c) The Department of Occupational Safety and Health (DOSH) is a department under the Ministry of Human Resources. Describe THREE functions of the DOSH.

[6 marks]

Continued.....

Question 3

(a) Analyze and discuss TWO potential benefits of having the top management to understand technology.

[4 marks]

(b) Discuss TWO positive impacts to the global trade community when a country has officially registered and becoming a part of the World Trade Organization.

[4 marks]

(c) The Washington Accord has played a significant role in making engineering a borderless trade.

(i) Concisely describe the concept of the Washing Accord.

[4 marks]

(ii) The status as a member of the Washington Accord will be revoked when its standards and practices of engineering teaching are poor. Discuss TWO impacts to engineering graduates of Malaysia IF this happens to a signatory country.

[4 marks]

(d) List and elaborate TWO advantages of the General Agreement on Trade in Services (GATS).

[4 marks]

Continued.....

Question 4

(a) Describe the roles of the Board of Engineers Malaysia (BEM) in maintaining the quality of the engineering fraternity in Malaysia.

[8 marks]

(b) Citing suitable examples, discuss why the following Code of Engineering ethics should be applied in engineering practices:

(i) "Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties."

[4 marks]

(ii) "Engineers shall perform services only in areas of their competence."

[4 marks]

(iii) "Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero-tolerance for bribery, fraud, and corruption."

[4 marks]

Continued.....

Question 5

(a) Ir. Siva is employed as the Director of Public Works under Majlis Perbandaran Sepang (MPS) in July 2020, she is in charge of overlooking the public works in the city of Cyberjaya. Ir. Siva is the only Professional Engineer with Practicing Certificate (PEPC) in a position of responsibility in the MPS.

Cyberjaya has several large food processing plants, during an operation, it is found out that these plants discharge very large amounts of vegetable wastes into the Cyberjaya's sanitary sewer (wastewater) system during the canning season. Part of the canning season coincides with the rainy season. Ir. Siva has the responsibility for the wastewater treatment plant and reports directly to the Pengarah Perbandaran, En. Azril. Technician Abu Bakar reports to Ir. Siva.

In September 2020, after some fact finding and design study, Ir. Siva notifies En. Azril of the inadequate capacity of the wastewater treatment plant to handle the potential overflow during the rainy season and offers possible solutions. Ir. Siva has also discussed the problem privately with certain members of the city council without the permission of En.Azril. En Azril has told Ir. Siva that "we will face the problem when it comes", and orders Ir. Siva to discuss the problems only with him and warns Ir. Siva that her job is in danger if Ir. Siva disobeys.

Ir. Siva again privately brings the problem up to other city officials. En Azril removes Ir. Siva from responsibility of the entire sanitary system and the chain of command by a letter instructing Abu Bakar that he is to take responsible charge of the wastewater system and report directly to him, including any interference by a third party.

Ir. Siva receives a copy of the memo. In addition, Ir. Siva is placed on probation and ordered not to discuss this matter further and that if she does she will be terminated.

Ir. Siva continues in her capacity as Director of Public Works, assumes no responsibility for the disposal plant and beds, but continues to advise Abu Bakar without the knowledge of En.Azril.

Continued.....

Question 5 (cont)

During the next rainy season, a particularly heavy storms occur in Cyberjaya. It becomes obvious to those involved that if waste water from the ponds containing the domestic waste is not released to the local river, the ponds will still eventually overflow and dump all waste into the river. Under the Selangor state law, this condition is required to be reported to the Selangor State Water Pollution Control Authority (SSWPCA), the agency responsible for monitoring and overseeing water quality in state streams and rivers.

Did Ir. Siva fulfil her ethical obligation by simply informing En. Azril and certain members of the MPS of her concerns? Apply the Code of Engineering ethics to justify your answer.

[10 marks]

(b) Ir. Syed owns a multi-disciplined engineering consultancy firm. He is a civil engineering consultant who specializes in building structural integrity. He is asked to evaluate the design of the electric cabling at a new incinerator by Bina Sdn. Bhd.

Due to manpower shortage and cost restructuring practices in his firm, Ir. Syed reviews and endorses the design and declares the design is now ready to be implemented.

(i) Apply TWO Code of Engineering Ethics and discuss the implications of Ir. Syed's actions.

[5 marks]

(ii) Apply TWO Code of Engineering Ethics and suggest the correct actions that must be taken by Ir. Syed when approached by Bina Sdn. Bhd. to evaluate the reclamation project.

[5 marks]

END OF QUESTION PAPER